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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Serial No: 09/758,948

Filed: January 11, 2001

Attorney Docket No: **DP-300744**

APPLICANT: Danan Dou

Group Art Unit: 1754

TITLE: Methods To Reduce Alkali Material  
Migration From Nox Adsorber Washcoat To Cordierite

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: MS: Amendment, Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on August 4, 2004.

  
Lowell M. Train

MS: Amendment  
Commissioner For Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**AMENDMENT**

Dear Sir:

This is Applicants' response to the Office Action mailed February 5, 2004. Applicants' hereby petition under 37 CFR 1.136(a) for a three-month extension of time and authorize the USPTO to debit the \$950.00 fee to deposit account 50-0831.

The Office Action rejects claims 1-7, 14-15, and 39-41 under 35 USC 102(e) as anticipated by Yamada et al, rejects claims 8-11 and 14 under 35 USC 103(a) as unpatentable over Yamada et al, and rejects claim 16 under 35 USC 103(a) as unpatentable over Yamada et al in view of EP 778072. These rejections are respectfully traversed.

Applicants' claims specify an exhaust gas catalyst system comprising a substrate (e.g., ceramic) having a nitrogen oxide adsorber that is disposed thereon, with an alkali metal barrier disposed between the nitrogen oxide adsorber and the substrate. The nitrogen oxide adsorber comprises a porous support loaded with a NO<sub>x</sub> oxidation catalyst and an alkali metal. Applicants disclose that the alkali metal barrier may be ceria. The Yamada et al reference discloses a NO<sub>x</sub> treatment material comprising support particles of ceria impregnated with NO<sub>x</sub> catalysts and barium, which particles are deposited in layers onto a cordierite substrate. Although the reference discloses barium as preferred, it teaches that other materials such as alkali metals may be substituted therefor.

Although some of the materials disclosed by Yamada et al (e.g., ceria) are also useful as alkali metal barriers in Applicants' invention, the reference does not disclose disposition of those materials between the nitrogen oxide adsorber and the substrate. The Yamada et al reference discloses coating catalyst and barium onto particles of ceria, which will of course result in the surface of the ceria particles being covered with barium. Since the ceria particles are encased in barium, if you will, they clearly cannot form an alkali metal barrier between the barium (which the examiner urges to be substituted with alkali metal) and the substrate. Accordingly, Applicants respectfully request that this rejection be withdrawn.

The Office Action rejects claims 1-7, 14-15, and 39-41 under 35 USC 102(e) as anticipated by Hanaki et al, rejects claims 8-11 and 14 under 35 USC 103(a) as unpatentable over Hanaki et al, and rejects claim 16 under 35 USC 103(a) as unpatentable over Hanaki et al in view of EP 778072. These rejections are respectfully traversed.

The Hanaki et al reference discloses a NO<sub>x</sub> treatment material comprising a carrier 10 such as cordierite having a catalytic layer 12 thereon. The catalytic layer 12 is divided into an upper layer 12a that contains platinum and rhodium and a lower layer 12b that contains platinum and/or palladium. The reference teaches that either or both of the upper and lower catalytic layers contains a NO<sub>x</sub> adsorber that is typically barium (as seen in the Examples), but may also be an alkali metal. The reference also teaches at col. 4, lines 8-14 that the catalytic layer 12 may optionally contain ceria or zirconia. Although Applicants have disclosed that ceria or zirconia may be used as alkali metal barrier materials in the present invention, there is no disclosure or suggestion in the reference of disposing such a material between the nitrogen oxide adsorber and the substrate as specified by Applicants' claims. Accordingly, Applicants respectfully request that this rejection be withdrawn.

The Office Action rejects claims 1-7, 14-15, and 39-41 under 35 USC 102(e) as anticipated by JP 09-057099. This rejection is respectfully traversed.

The Office Action refers to Example 1 of JP 09-057099 as disclosing a material comprising a honeycomb cordierite support coated with a potassium nitrate solution having thereon a coated layer of silica and alumina, which layer is impregnated with platinum and potassium. The Office Action does not specify what component of the reference's material is supposed to be an alkali metal barrier, and Applicants submit that JP 09-057099 does not disclose any alkali metal barrier. The reason for this is that the reference teaches that the concentration of alkali metal in the honeycomb cordierite support must be the same or higher than the concentration of alkali metal in the silica/alumina layer in order to prevent diffusion of alkali metal from the silica/alumina

layer to the cordierite support. If there were some sort of alkali metal barrier disposed between the alkali metal in the catalytic layer and the substrate as required by Applicants' claims, there would have been no need for incorporating alkali metal in the substrate as taught by the reference to prevent diffusion of the alkali metal. Since the reference does not disclose anything functioning as an alkali metal barrier, Applicants respectfully submit that the rejection should be withdrawn.

For all the reasons set forth above, Applicants submit that the application is in proper condition for allowance and respectfully request early action toward that end.

Please charge any necessary fees, including any extension of time, or any other fee deficiencies to Delphi Technologies, Inc., Deposit Account No. 50-0831.

Respectfully Submitted:



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enclosure